A REVIEW OF HADRURUS SCORPIONS (VEJOVIDAE)[1]

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This taxon, the popularly designated giant hairy scorpions, belongs to Vejovinae of the Vejovidae. The characteristics of the subfamily are: First four caudal segments with paired inferior median keels or their vestiges, three pair of lateral eyes of which the third pair is always the smallest; median ocular tubercle located just anterior to the middle of carapace; distinct median claw (unguicular spine) on pretarsus; internal border of pedipalp tarsus with a single row of granules in non-overlapping rows, accompanied by widely spaced large granules on interior surface.

Hadrurus Thorell

Hadrurus Thorell, 1876, Ann. Mag. Nat. Hist., ser. 4, vol. 17, p. 11; Kraepelin, 1899, Das Tierreich, Scorpiones und Pedipalpi, no. 8, p. 187; Pocock, 1902, Biologia Centrali-Americana, Scorpiones, Pedipalpi, Solfugae, p. 5; Ewing, 1928, Proc. United States Natl. Mus., vol. 73, p. 7; Hoffman, 1931, An. Inst. Biol. Mexico, vol. 2, p. 334; Werner, 1934, in Bronn, Klassen und Ordnungen des Tierreichs, vol. 5, book 8, Pedipalpi, Scorpiones, p. 265; Stahnke, 1945, American Mus. Nov., No. 1298, 1945.

Scorpions of the genus *Hadrurus* have an abundance of bristles on legs and cauda; inferior border of movable finger armed with very large, darkly pigmented tooth; pedal spurs with denticulate spines, interior spurs with 3 to 4 teeth, exterior ones with 5 to 6; ratio of carapace length to posterior width 0.92–1.04; ratio of *distance* from anterior margin to anterior edge of median eyes to carapace length 0.46 to 0.50. Thus the carapace length approximates the posterior width and the median eyes are slightly forward of the middle of the carapace. Numerous (over 20) trichobothria on inferior edge of manus, ventral and exterior surfaces of pedipalp patella. Third marginal lamella longer than second.

KEY TO THE SPECIES OF HADRURUS

1 Trunk concolorous brownish yellow except for dark median ocular tubercle; other structures lighter yellow. One-half genital opercular with 4 large setae (Fig. 1) .... **Hadrurus concolorous** Stahnke
2 Trunk not concolorous 3
3 (2) Anterior portion of interocular triangle light yellow or slightly brownish 5
4 (2) Anterior portion of interocular triangle dark brown to black 11

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5 (3) A crescentic, darkly pigmented region passing through median ocular tubercle with horns touching lateral eye clusters (faint or absent in poorly preserved specimens). One-half genital operculum with more than four bristles. Ratio of hand width to thickness greater than 1.55. Ratio of tarsus length to manus width less than 2.20...**H. hirsutus** (Wood)

6 (3) Crescentic region indefinite or lacking with region posterior to it of very dark color...7

7 (6) Fingers and hand of pedipalp one color or fingers slightly darker..9

8 (6) Fingers and hand of pedipalp definitely of a darker color than hand...............................**H. aztecus** Pocock

9 (7) Fifth caudal segment same yellowish color of other four. One-half of genital operculum with more than four large setae. Ratio of basal piece width to length over 1.60...**H. arizonensis** Ewing

10 (7) Fifth caudal segment dark brown in toto or in part; other segments yellow. One-half of genital operculum with four large setae. Ratio of basal piece width to length not over 1.50 (Fig. 3)............................**H. thayeri** Stahnke

11 (4) Cauda yellowish...........................**H. spadix** Stahnke

12 (4) Postabdomen dark brown; telson light yellow (Fig. 2)...**H. pinteri** Stahnke

Hadrurus arizonensis (Ewing)

Hadrurus hirsutus arizonensis Ewing, 1928, Proc. United States Natl. Mus., vol. 73, p. 9.

Hadrurus arizonensis Stahnke, 1945, American Mus. Novitates, No. 1298, pp. 6–8.

Differs from *H. hirsutus* in that it lacks a distinct interocular crescent. Horns of crescent present but body continuous with date-brown coloring of posterior part of carapace. Dorsum of trunk date-brown intermingled with gray and yellow. Recently preserved specimens lack the gray. Gray coloring due to dusty deposit between tergal granules. Living specimens with abdomen distended with food appear olive green banded with date brown. Change in appearance due to the now visible intersegmentary and pleural membranes. Lateral margins and anterior two-thirds of carapace, book lung area, cauda, legs and pedipalps light yellow. Fingers of pedipalps with reddish granules. Tarsus of pedipalp may be longer than, as long as, or shorter than carapace; more frequently longer than carapace on ♂ and shorter on ♀. Pectinal teeth: Arizona ♀ 25–34, av. 28.7; ♂ 29–39, av. 34.6. California ♀ 28–33, av. 30.2; ♂ 32–40, av. 36.8. Nevada ♀ 29–33, av. 31.2; ♂ 34–41, av. 38.0.

DISTRIBUTION.—Southern to northwestern Arizona; southern Utah; southern and central California; southern Nevada; northern Baja California, Mexico.

Hadrurus aztecus Pocock

Hadrurus aztecus Pocock, 1902, Biologia Centrali-Americana, Scorpiones, Pedipalpi, Solfugae, p. 7; Ewing, 1928, Proc. United States Natl. Mus., vol. 73, p. 9; Hoffman, 1931, An. Inst. Biol. Mexico, vol. 2, pp. 340–356; Stahnke, 1945, American Mus. Novitates, No. 1298, pp. 8–9.

Posterior two-thirds of carapace and terga black or blackish brown. Area anterior to median ocular tubercle light yellowish (similar to *H. arizonensis* and *H. hirsutus*). Cauda, pedipalps (except fingers) and legs also light yellow. Fingers reddish. Sternites of male more or less blackish, punctiform and with transverse wrinkles. Those of female lighter brown than terga. A double longitudinal series of denticles on inner face of femur of legs 1 to 4; well developed on 2 and 3, but incomplete and weak on 3 and 4. Tarsus of male same length or longer than carapace; female always shorter than carapace. Pectinal teeth: ♂ 37; ♀ 27–32.

DISTRIBUTION.—Mexico and extreme southern Arizona.

Hadrurus concolorous new species

(FIGURE 1)

TYPES.—*Holotype.*—♀, ASU 68-602, length 54 mm, fifty-four and two tenths miles north of La Paz, Baja California del Sur, Mexico. Under thin, dry cowdung in broad, flat burrow six inches long dug in very fine, powdery sand. June 14, 1968. L. L. and H. L. Stahnke. *Allotype.*—♂, ASU 56-175, length 37 mm (juvenile), Isla San Marcos, Baja California, Mexico. March 31, 1953. Fig-Hoblyn. Repository California Academy of Science.

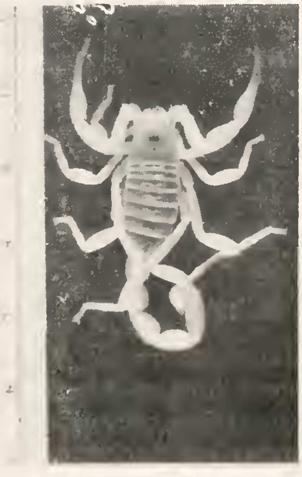
FIG. 1, *H. concolorous* ♀, (ASU 68-602).

DIAGNOSIS.—Differs from *H. hirsutus* (Wood), 1863 as follows: Dark crescentic spot of interocular triangle lacking. A specimen of *H. hirsutus* of the same size would have a distinctly marked crescent and the carapace would be a light rather than a reddish yellow. Genital operculum of *H. hirsutus* with more than four setae on each sclerite. Ratio of hand width to thickness over 1.55 in *H. hirsutus;* under 1.45 in *H. concolorous.* Ratio of distance between median eyes to diameter of median eyes over 1.45 on *H. hirsutus;* under 1.25 on *H. concolorous.* Ratio of tarsus length to manus width under 2.10 in *H. hirsutus;* over 2.40 in *H. concolorous.*

Description.—Trunk dorsally and ventrally concolorous brownish yellow except for dark brown median ocular tubercle; cauda and chelicera somewhat lighter yellow; telson, legs and pedipalps pale yellow. Storage in ethanol darkens all colors. Lightly granular over-all.

Prosoma.—*Carapace.*—Median anterior margin protruding. Hirsuteness and lateral eyes as in *H. thayeri.* Densely granular except area immediately around median ocular tubercle. Ratio of carapace length to posterior width over 1.00; length to anterior width over 1.60. Furrows as in *H. thayeri. Sternum.*—Like *H. thayeri. Pedipalps.*—Tarsus as in *H. thayeri. Tibia.*—Like *H. thayeri* but without row of granules on inner surface parallel to basal row of granules on cutting edge. *Manus.*—Like *H. thayeri.* Ratio of tibia length to tarsus length 1.47; of tarsus length to manus width ♀ 2.43, ♂ 292. *Patella.*—Like *H. thayeri* except inner surface lightly granular; ventral and exterior surface agranular. *Femur.*—Like *H. thayeri* but dorsal surface agranular except for cluster of five granules proximad; inner surface with about four or five large, scattered granules and about eight large setae; ventral surface agranular but for a cluster of granules proximad. *Walking legs* and femurs like *H. thayeri. Chelicera.*—Like *H. thayeri* except 5–6 bristles on superior surface; large tooth on inferior surface curved near distal one-third and basal two-thirds of inferior margin only moderately hirsute.

Opisthosoma.—*Mesosoma.*—Like *H. thayeri* but tergites agranular except for lateral and narrow posterior margins which are lightly to moderately granular. *Sternites.*—Like *H. thayeri. Genital operculum.* Like *H. thayeri* except that four bristles on each opercular sclerite not linearly arranged. Pectines.—Like *H. thayeri.* Teeth ♀ 29–30, ♂ 35–37. Metasoma.—Like *H. thayeri.*

Hadrurus histutus (Wood)

Buthus hirsutus Wood, 1863, Proc. Acad. Nat. Sci., Philadelphia, p. 108; Jour. Acad. Nat. Sci., Philadelphia, ser. 2, vol. 5, p. 367.

Buthus emarginaticeps Wood, 1863, Proc. Acad. Nat. Sci., Philadelphia, p. 109; 1863, Jour. Acad. Sci., Philadelphia, ser. 2, vol. 5, p. 367 (Anomally of *H. hirsutus*).

Hadrurus hirsutus Thorell, 1876, Ann. Mag. Nat. Hist., ser. 4, vol. 17, p. 11; Kraepelin, 1899, Das Tierreich, Scorpiones, Pedipalpi, No. 8, p. 188; Pocock, 1902, Biologia Centrali-Americana, Scorpiones, Pedipalpi, Solfugae, p. 6; Ewing 1928, Proc. United States Natl. Mus., vol. 73, p. 8; Hoffman, 1931, An. Inst. Biol., Mexico, vol. 2, pp. 335–340; Stahnke, 1945, American Mus. Novitates, No. 1298, pp. 5–6.

Carapace with dark, more or less crescent-shaped spot passing through median ocular tubercle with tips of crescent horns reaching lateral eyes. Entire body, except aculeus, light yellow. Sometimes dark crescent obliterated in preserved specimens and generally becomes less distinct in large (four inch and over) specimens. Crescent most distinct in young specimens which may occasionally also have faint, irregular dark spots on both carapace and dorsum of preabdomen. Posterior carapace and preabdomen of live specimens may have greenish hue. Live specimens have area over book lungs whitish yellow with rest of sternites greenish. Legs and pedipalps light yellow; fingers of pedipalps may have slight reddish tinge. Tarsus of pedipalps generally longer than carapace on both ♂ and ♀.

Pectinal teeth: Arizona ♀ 26–31, av. 28.7; ♂ 31–40, av. 34; California ♀ 27–31, av. 29.3, ♂ 34–40, av. 36.4.

DISTRIBUTION.—Southwestern Arizona; southern California; Mexico.

Hadrurus pinteri NEW SPECIES

(FIGURE 2)

TYPES.—*Holotype.*—♀, ASU 68–0090, length 63 mm, Puertocitos, Baja California del Norte, Mexico. On lightly volcanic ash. February 24, 1968. P. J. Pinter. *Allotype.*—♂, 68–1276, length 64 mm, Mission de Calamyget, Baja California, Mexico. Black volcanic banks of a ravine. April 16, 1962. E. L. Sleeper *via* W. D. Stockton. Repository California State College, Long Beach, California. *Paratypes.*—3 ♀s, ASU 56–0132, length 61 mm, ASU 56–0134, length 73 mm, Agua Verde Bay, Baja California, Mexico. March 26, 1953. J. R. Slevin; ASU 68–1277, length 83 mm, same as ASU 68–1276 above.

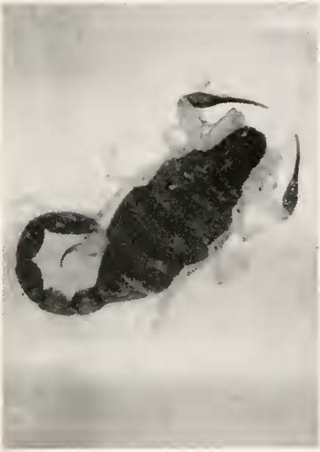

FIG. 2. *H. pinteri* ♀. (ASU 68–0090).

DIAGNOSIS.—Differs from *Hadrurus spadix* Stahnke, 1940 as follows: All caudal segments brown rather than concolorous yellow. Pedipalp chela brown rather than yellow with reddish fingers. Ratio of genital plate width to length for *H. pinteri* over 1.95; *H. spadix* under 1.80. Ratio of caudal segment III length to width for *H. pinteri* under 1.55; *H. spadix* over 1.65. Ratio of caudal segment IV length to width for *H. pinteri* under 1.80; *H. spadix* over 1.90. Ratio of caudal segment V depth to ampulla depth for *H. pinteri* over 1.00; *H. spadix* under 0.90.

DESCRIPTION. Entire dorsum of trunk date brown. Most specimens with distended preabdomens so that exposed intertergal connective tissue produces a banded appearance. All segments of postabdomen date brown but dorsum lighter. Sternite VII date brown; VI lightly invaded with brown and V lightly so. Chela of pedipalps date brown but lighter than trunk. Some brown pigment on distal portion of patella. Chelicera diffusely brown. Remainder of pedipalp patella and other segments, as well as legs, telson and other ventral structures a pale yellow in live specimens. This becomes a dark yellow after preservation in ethanol. Latero-distal terminus of femur and patella of all legs with reddish brown spot. Dorsum lightly granular and shiny.

PROSOMA.—*Carapace.*—Like *H. thayeri* except two setae anterior to median ocular; central area surrounding median ocular tubercle agranular. Ratio of carapace length to posterior width 0.99 to 1.08; length to anterior width 1.65 to 1.78. *Sternum* like *H. thayeri. Pedipalps, Tarsus.*—Like *H. thayeri* except that external surface has one longitudinal, continuous ridge. *Tibia.*—Like *H. thayeri* except that there is no row of granules on inner surface parallel to basal row of granules on cutting edge. *Manus.*—Like *H. thayeri.* Ratio of tibia length to tarsus length 1.44 to 1.50. *Patella.*—Like *H. thayeri* except that this exterior median keel is weakly developed and agranular and ventro-exterior keel is slightly granular; dorsal surface of ♂ agranular, of ♀ densely but inconspicuously granular on either part or entire surface; when entire surface is involved, granules distad are coarse. Also, ventral, inner and exterior surfaces agranular but inner surface with large setae. Numerous trichobothria as in *H. thayeri.* *Femur.*—Like *H. thayeri* except some granules on proximal end of ventro-exterior keel. Also surfaces differ as follows: Dorsal surface agranular except for inconspicuous, scattered granules; inner surface agranular except for a few large granules proximad; ventral surface agranular except for a few proximal granules. *Chelicera.*—Like *H. thayeri.* *Walking legs.*—Like *H. thayeri.*

OPISTHOSOMA.—*Mesosoma.*—Setae like *H. thayeri.* Tergites I–VI agranular and shiny except for lightly granular lateral areas and sparse granulation along posterior edge; VII coarsely but not densely granular and with pair of vestigial lateral keels. Other tergites keelless. *Sternites.*—Small cluster of setae just posterior to basal piece plus occasional setae on edges of sternites. Sternites I–VI keelless and agranular; VII with two pair of moderately developed lateral keels which may be distinctly granular on ♀ but indistinctly so on ♂. Stigma slit-like; lung book areas elevated above sternal surface. *Genital operculum.*—Divided and without genital papillae on both sexes. Five or more setae, irregularly arranged, on each opercular sclerite. *Pectines.*—Like *H. thayeri.* Teeth: ♀ 28–32, ♂ 37–39. *Metasoma.*—Like *H. thayeri* except inferior lateral and inferior median keels all well developed; those on caudal segment I agranular, II lightly granular and III–V strongly granular. Anal arch and anterior crest like *H. thayeri* but posterior crest with but few granules. *Telson.*—Like *H. thayeri.*

Hadrurus spadix Stahnke

Hadrurus spadix Stahnke, 1945, American Mus. Novitates, No. 1298, pp. 4–5.

Entire dorsum of trunk nearly uniform date brown color. Appendages light yellow except red pedipalp fingers; red color sometimes fades in preserved specimens; redness extends proximally along inner marginal and inner superior keels, sometimes to such an extent as to give entire superior surface of chela distinct reddish appearance. Tarsus of pedipalp definitely longer than carapace on ♂; may be as long as or longer on ♀. Pectinal teeth: ♀ 28–30; ♂ 32–39.

DISTRIBUTION.—Northern Arizona; Idaho, Utah and Nevada.

Hadrurus thayeri NEW SPECIES

(FIGURE 3)

TYPES.—*Holotype.*—♀, ASU 68-814, length 99 mm, 5.3 mi. N.E. Cabo San Lucas, Baja California del Sur, Mexico. Under rock in shallow burrow. June 12, 1968. Z. L. and D. Thayer. *Allotype.*—♂, ASU 65-0912, length 100 mm, Las Cruces, Baja California del Sur, Mexico. In Fisher residence on terrazo floor in living room. April 29, 1965. A. Perez y Espinosa via K. Crosby. *Paratypes.*—3 ♀s, ASU 56-243, length 76 mm, Las Animas, Sierra Laguna, Baja California, Mexico. Oct. 12, 1941. Ross and Bohert. California Academy of Science; ASU 68-0611, length 62 mm, ASU 68-0931, 55 mm, west of Crosby residence, Las Cruces, Baja California del Sur, Mexico. Under rocks without burrow. June 10, 1968. L. L. and H. L. Stahnke. ♂, 65-0051, length 104 mm, under wood by guest house, Crosby residence, Las Cruces, Baja California del Sur, Mexico. April 2, 1965. M. S. Perez via K. Crosby.

DIAGNOSIS.—Differs from *H. arizonensis* (Ewing) 1928 as follows: Caudal segment V dark brown rather than concolorous yellow with other segments. In older preserved specimens dark brown pigment may be sparse. Dark brown area of carapace dorsum not uniformly diffuse but invaded laterally just posterior to median ocular tubercle by projections of yellow. *H. thayeri* has only four large setae on posterior border of each half of genital operculum. Ratio of caudal segment III length to width, ♀ 1.30–1.35, ♂ 1.45–1.50. These ratios for *H. arizonensis*, ♀ 1.40–1.50, ♂ 1.60–1.70. Ratio of caudal segment IV length to width for *H. thayeri*, ♀ 1.60–1.65, ♂ 1.75–1.80, for *H. arizonensis*, ♀ 1.70–1.90, ♂ 1.90–2.00. Ratio of basal piece width to length for *H. thayeri*, 1.60–1.75; that of *H. arizonensis*, 1.25–1.50.

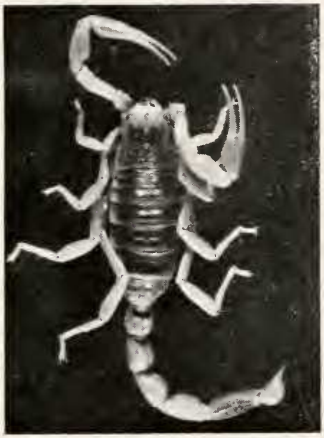

FIG. 3, *H. thayeri* ♀, (ASU 68-814).

DESCRIPTION.—Dorsum of trunk with variegated pattern of date brown over yellow base except for following solid yellow areas: Anterior portion of interocular triangle, narrow band of yellow posterior to median ocular tubercle and most of tergite VII. Ethanol preserved specimens lose much of brown pigment. Pedipalps, legs and all except caudal segment V are yellow. These structures are pale yellow in living specimens. Caudal segment V may be densely or diffusely brown; virtually disappears in large ethanol preserved specimens.

PROSOMA.—*Carapace.*—Median anterior margin protruding, three lateral eyes with first two forming approximately 130° angle with third which is smallest. Large setae along anterior margin with one posterior to each lateral eye cluster and two on posterior slope of median ocular tubercle. Surface moderately covered with small granules except for agranular central portion ot frontal lobes. Posterior third of carapace somewhat coarsely granular. Median ocular tubercle well developed and broader on female than male. Ratio of carapace length to posterior width 0.94 to 1.00; length to anterior width 1.50 to 1.65. The following carapacial furrows are present: Anterior median, median ocular, lateraly ocular, central median, transverse median, posterior median, posterior transverse, posterior marginal and posterior lateral. *Sternum.*—Lateral sides converge inwardly at mid point; divided by deep median furrow forming two vaulted areas laterally and a depressed, diamond-shaped area anteriorly. *Pedipalps. Tarsus.*—Exterior surface with two continuous longitudinal ridges. Sparcely hirsute. Cutting edge straight with eight diagonal rows of denticulate granules plus a short basal row and eight large median and nine large inner lateral denticulate granules plus a large terminal tooth. *Tibia.*—Sparsely hirsute. Two discontinuous longitudinal ridges on external surface. Cutting edge like tarsus. Row of granules on inner surface parallel to basal row of granules on cutting edge. *Manus.*—Sparsely hirsute. Smooth to finely granular except for coarse granules of interior and exterior keels. External marginal keel well developed and bearing large granules. Superior digital keel vestigial and agranular except for a few large basal granules. Superior inner secondary keel weakly developed but granular approximately one-half length. Interior marginal keel well developed and granular over two-thirds length. Other keels lacking. Numerous trichobothria on inferior edge of manus. Ratio of tibia length to tarsus length 1.40 to 1.46. *Patella.*—Dorso-inner and ventro-inner keels well developed and coarsely granular. Dorso-exterior keel developed more strongly distad and lightly to densely granular; not conspicuously so in juveniles. Exterio-median keel moderately developed, agranular on juveniles and adults bearing a few granules distad. Ventro-exterior keel on proximal two-thirds and coarsely granular. Dorsal, inner and ventral surface densely granular. Inner surfaces with large setae. Ventral surface sparsely granular on juveniles. Only distal superior half of exterior surface moderately granular. Numerous trichobothria (over 24) on ventral surface along exterior margin and on exterior surface (over 30). *Femur.*—Dorso-inner, dorso-exterior and ventro-inner keels strong and granular. Extero-median keel vestigial, agranular but bears a row of large setae. Ventro-exterior keel lacking and agranular. Dorsal and inner surfaces granular; inner surface also bears large setae. Ventral surface granular on proximal half. Exterior surface rounded and agranular. *Chelicera.*—Five well developed, broad, flat teeth on superior margin of movable finger; second and fifth largest; first, about one-half as large; and third and fourth about one-half to one-third size of first. 6–8 setae on superior surface. One large, elongate, stout, dark tooth on inferior margin which is densely hirsute along basal two-thirds. Superior margin of fixed finger with three teeth; second and third large and broad; first about one-third as large and fused with base of second, often joined sufficiently to simulate double cusped tooth. *Walking legs.*—Tarsomeres and tibia densely hirsute; other leg segments lightly so. Tarsomere II with single row of short spines on inferior surface. Tarsomere I of leg I with three longitudinal rows of spines—one on exterior and two on interior edges; leg II with two rows; legs III and IV with one row. Comb of long bristles on exterior edge of tarsomeres I and II of legs I–III; represented by a few long setae on IV. Well developed pretarsal median and lateral claws. Exterior and interior pedal spurs with denticulate spines; three to four on interior edge and five to six on exterior. Median lobes of tarsomere II subtriangular with exterior edges densely hirsute. *Femurs.*—Row of large granules on inferior edge of femurs. Exterior surface of leg I sparsely granular; II–IV densely covered with small granules.

OPISTHOSOMA.—*Mesosoma.*—Tergites very sparsely hirsute; transverse median are of I–VI agranular and shiny with anterior margin finely granular and posterior and lateral areas more coarsely so. Tergite VII densely covered with small to large granules and bearing two vestigial lateral keels. Other tergites without keels. *Sternites.*—Sparesly hirsute on lateral and posterior edges; small cluster of setae just posterior to basal pieces of pectines. Sternites I–VI agranular; VII lightly granular and bearing two pair of lateral keels with confluent granules; median pair vestigial. Stigma slit-like; lung book areas elevated above sternal surface. *Genital operculum.*—Divided and without genital papillae on either sex. Four sublinearly arranged large setae near posterior margin of each opercular sclerite. *Pectines.*—Densely hirsute; numerous subcircular middle lamellae, each bearing one bristle. Angle of proximal middle lamellae with dentate edge approximately 100° for ♂ and 130° for ♀. Three marginal lamellae with third longer than second. Fulcra subtriangular with each bearing 1–3 bristles; adults commonly with three. Basal piece transversely oblong with narrow, ventral median notch. Teeth: ♀ 23–29, ♂ 33–35. *Metasoma.*—Intercarinal spaces mostly agranular except sparse granulation on dorso-lateral areas and caudal segment V; juveniles less granular. Caudal segments I–IV sparsely hirsute; V moderately to densely so. Dorsal furrow weakly developed. Dorsal and superior lateral keels moderately developed and granular. Median laterals moderately developed and granular on all segments; covering only distal two-thirds of III and IV and proximal third of V. Inferior and median lateral keels well developed on all segments; agranular on I and II, lightly granular on III and strongly on IV and V. Anal arch well developed and bearing widely spaced large setae; anterior crest with medium sized chisel-shaped granules; posterior crest bearing row of small cone-shaped granules. *Telson* densely hirsute ventrally. Ampulla densely covered with very large granules on antero-ventral surface.

The Entomologist's Record

To encourage the publication of concise and useful new distribution records, corrections of previously published erroneous records, misidentifications, short field notes, and current news items about entomologists, amateur and professional, entomology departments and museums, prompt (monthly) publication is offered in this department.

Colorado Orthoptera.—A new state record and a major range extension: *Schistocerca americana* (Drury) (Acrididae) probably reaches, in the west, its "northern limit of continuous habitat in southeastern Kansas" (Hebard, 1931, Proc. Acad. Nat. Sci. Phila. 83: 119–227). It is, however, resident further west in the southern parts of its range; and it regularly wanders north of its resident range in the east, frequently appearing hundreds of miles further north. One specimen, undoubtedly a vagrant, has been taken in Colorado. This is an adult male, collected July 4, 1958, near Two Buttes, Baca County, in extreme southeastern Colorado by Kathleen D. and Douglas G. Alexander. *Capnobotes fuliginosus* Thomas (Tettigoniidae) is known primarily from desert mountains in the southwest, from California to the Davis Mountains of southwest Texas. It was first reported from Colorado in the northwest, in Yampa Canyon, Dinosaur National Monument (Alexander and Rodeck, 1952, Entomol. News 63: 238–240). It is now known from southeastern Colorado as well, two adults, male and female, having been collected August 29, 1960, near Undercliffe, Colorado, by T. Paul Maslin. These were in stream bottom vegetation near the mouth of Huerfano Canyon, about 23 miles southeast of Pueblo. The nearest previous record is from the Mesa de Maya in the Oklahoma panhandle (Blair and Hubbell, 1938, Amer. Midl. Nat. 20: 425–454). All three specimens are now in the University of Colorado Museum.—GORDON ALEXANDER, *University of Colorado, Boulder, Colorado 80302.*